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A HOLISTIC EXAMINATION OF THE ROYAL CANADIAN NAVY'S CAPABILITY TO SUPPORT FORCES ASHORE

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AIM

1. The aim of this Service Paper is to outline the challenges facing the Royal Canadian Navy (RCN) in the littoral operating environment, and specifically in its ability to operate in conjunction with land forces. It is intended to provide, to force development planners, options for procuring the necessary equipment to excel in this environment, as well as recommendations for developing operating procedures. This paper attempts to outline a suite of capabilities required to effectively support land forces in the littorals, but does not go into details of each capability, as each could warrant a service paper of its own.

INTRODUCTION

2. The littoral operating environment is defined as "The coastal sea areas and that portion of the land which is susceptible to influence or support from the sea"[1]. Canada's coastline is the longest in the world[2], and as a result, it also has one of the largest littoral areas of any country in the world. A review of two of the RCN's capstone documents, *Leadmark: The Navy's Strategy for 2020* and *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*, reveals that the littoral operating environment plays a very important role in the institution's future. With no likely rival to the United States Navy's (USN) dominance in the open ocean, these strategic documents predict that future

[1] Canada, Department of National Defence, *Leadmark: The Navy's Strategy for 2020.* (Ottawa, ON: Chief of the Maritime Staff, 2001), GL12.

[2] Statistics Canada, "Geography," last accessed 5 February 2016, http://www.statcan.gc.ca/pub/11-402-x/2012000/chap/geo/geo-eng.htm

conflict is likely to take place in this environment.[3] Furthermore, with "most of the world's population liv[ing] within 300 miles of the coastline,"[4] it is not difficult to imagine that coastal areas will be likely areas to experience security issues ranging from civil war to natural disasters. As a result, many navies of the world, including Canada's, are beginning to shift focus towards the littorals.[5]

3. Operations in this environment create two main challenges for the RCN. The first is related to the specific threats that this operating environment presents. The second is that this environment presents an increased requirement to be able to operate in support of ground forces ashore. This service paper will analyze the latter, and will look at the capabilities that the RCN will require in order to enhance its ability to support land forces.

4. A review of the *Canada First* Defence Strategy also reveals that the interoperability with land forces will be an important function for the RCN. It is evident that each of the six missions[6] could take place in the littoral regions of Canada and the world, and therefore it is imperative that the RCN and CAF as a whole are prepared to operate effectively in this environment. Furthermore, the need to operate with land forces could span the spectrum of operations, from Humanitarian Assistance / Disaster Relief (HADR) to combat operations. It is also important to note that these capabilities are applicable in both an expeditionary and domestic environment. For example, there are

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[3] *Leadmark*, 43.
[4] *Ibid.,* 2.
[5] Vanguard Canada, "Into the contested littorals: Navy prepares for complex operational environment," last accessed 6 February 2016, http://www.vanguardcanada.com/2012/09/01/contested-littorals-navy-prepares-complex-operational-environment/
[6] Department of National Defence, *Canada First Defence Strategy*. http://www.forces.gc.ca/assets/FORCES_Internet/docs/en/about/CFDS-SDCD-eng.pdf

areas of Canada, particularly in the Arctic, that are not easily accessible by land. As a result, it is imperative that the CAF has the ability to project forces ashore from the sea.

DISCUSSION

5. In order to support forces ashore, *Leadmark* suggests that a number of capabilities are required as follows:

a. Embarked Joint Headquarters;

b. Intelligence, Surveillance and Reconnaissance (ISR);

c. Protection of landed forces, which it subdivides into:

i. Area air defence

ii. Precision attacks / Naval fire support; and

iii. Strategic lift.[7]

6. This paper will look at each of these areas, will define what capabilities are inherent in the current fleet, and what will be required in the future. In doing so, this paper will provide two broad options for the way forward. The first is to proceed only with those platforms that the RCN currently has, or plans to acquire. The second option builds on the first by adding dedicated platforms for the purposes of supporting land operations from the sea.

Embarked Joint Headquarters

7. The ability to embark a joint headquarters provides the ability to control joint operations from the sea. This is particularly useful in situations where it is not possible or practical to set up a headquarters ashore. This inability could be due to a number of reasons including a threat, lack of infrastructure, or simply the political desire to

[7] *Leadmark*, 110.

minimize the footprint ashore. Having a joint headquarters embarked at sea also provides expediency, as no time is required to establish the headquarters ashore.

8. Currently, the RCN has virtually no ability to embark a joint headquarters due to limited space and bunking in the Halifax class. Although certain ships have been fitted with enhanced Task Group command capabilities[8], these are not seen as suitable for joint operations. The Arctic Offshore Patrol Ship (AOPS) is expected to provide a "multi-purpose operational space … where operational planning and mission execution will be coordinated,"[9] and it is expected that it will provide some limited additional capability for joint or whole-of-government operations. The forecasted Joint Support Ship (JSS), based on the German Berlin Class, may also provide some additional capabilities in this regard, although not what was originally envisioned[10] prior to the failed procurement in 2008[11]. Nonetheless, it is likely that some limited capability to house headquarters staff will be possible. It is also expected that the JSS will provide additional hospital services and general logistics support[12], which are also essential capabilities for supporting land forces. Finally, the Canadian Surface Combatant (CSC) Concept of Employment speaks to the ability to support land forces, but there is no mention of the ability to embark a joint headquarters of any significant size. Due to the space limitations inherent in surface combatants, it can be assumed that any capability will be extremely limited. As a result,

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[8] Government of Canada, "Archived - Royal Canadian Navy's Transition to the Future Fleet," last accessed 7 February 2016, http://news.gc.ca/web/article-en.do?nid=886119

[9] Department of National Defence, "Harry DeWolfe Class Arctic/Offshore Patrol Ship Fact Sheet," last accessed 5 February 2016, http://www.navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/aops-factsheet.pdf.

[10] Department of National Defence, *Securing Canada's Ocean Frontiers: Charting the Course from Leadmark*, (Ottawa, ON: Chief of the Maritime Staff, 2005), 41.

[11] Brian Wentzell, "JSS just another in a series of failed procurements," *Naval Review*, 10 October 2008, http://www.navalreview.ca/2008/10/jss-just-another-in-a-series-of-failed-procurements/.

[12] ThyssenKrupp Marine Systems, "BERLIN Class Combat Support Ship," last accessed 6 February 2016, https://www.thyssenkrupp-marinesystems.com/en/berlin-class-combat-support-ship.html

based on the expected fleet composition of the RCN, the ability to command operations ashore will be quite limited. In order to increase this capability, it would be necessary to acquire a purpose built platform, such as an amphibious warfare ship that would provide adequate facilities to embark a sizeable headquarters.

9. In addition to the ability to embark staff, it is also necessary to have the necessary systems to be able to communicate with forces ashore. The RCN's focus has traditionally been on interoperability with other naval forces, but in the future it will be necessary to conduct further integration between naval and land force communications systems to ensure that seamless command and control is possible. "Gateway" C4ISR (Command and Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) systems, which provide an interface between advanced or classified C4ISR systems, and those with lesser capability would also be of significant benefit as they can assist in safely sharing information with other nations or other government partners.[13]

Intelligence, Surveillance and Reconnaissance

10. The RCN has a robust ISR capability, but it is optimized for sensing at sea, rather than over the land. However, the RCN is accustomed to operating with Maritime Patrol Aircraft (MPA), which have traditionally been used in an anti-submarine warfare role. More recently however, these aircraft have been used in an overland role, as evidenced in current operations in Iraq[14]. In order to enhance the RCN's ability to support forces ashore, it will be imperative that system interoperability be maintained. The advent of unmanned aerial vehicles (UAVs) also provides a relatively low cost option for ISR capabilities over the land. By basing these assets at sea, it could reduce the footprint

[13] *Leadmark,* 163.

[14] Department of National Defence, "Operation IMPACT," last accessed 7 February 2016, http://www.forces.gc.ca/en/operations-abroad-current/op-impact.page.

ashore by providing a safe area for launching, recovering and controlling these assets. In summary, future platforms should maintain the ability to share information with MPAs and should also be fitted with the ability to operate UAVs at sea and over the land.

Area Air Defence

11. The RCN's Area Air Defence capability is provided by the Iroquois Class, but with only HMCS ATHABASKAN still in service, and due to retire in the near future, this will be a significant capability gap for the RCN. It is a gap that is equally applicable in traditional Naval Task Group operations, and is a planned capability for the CSC. As a result, it will not be discussed in detail in this paper, other than to say that it is a necessary capability for successful operations in the littorals in a hostile threat environment, and is therefore essential for supporting land operations from the sea.

Naval Fire Support

12. The RCN currently has limited ability to strike shore targets. The Harpoon anti-ship missile carried by the Halifax Class provides a standoff land attack capability[15]. However, the 57-mm gun provides very limited capability for shore bombardment. A more robust capability would provide the ability to support land forces in either an offensive or defensive role. This would require the necessary ISR capabilities to direct fire as well as the appropriate weapons systems. Modern gun systems are available that provide an anti-air capability similar to that inherent in the current fleet, while providing a more robust shore bombardment capability. [16] It is recommended that such a capability be provided in CSC.

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[15] Department of National Defence, "HCM/FELEX Fact Sheet," last accessed 5 February 2016, http://www.navy-marine.forces.gc.ca/assets/NAVY_Internet/docs/en/hcm_felex_factsheet.pdf.

[16] BAE Systems, "Mark 45 Naval Gun System," last accessed 5 February 2016, http://www.baesystems.com/en-sa/download-en-sa/20151124115140/1434555687963.pdf

Strategic Lift

13. For the purposes of this paper, the concept of strategic lift will be expanded to look not only at the ability to transport equipment by sea, but also at the ability to move equipment and personnel ashore for the purposes of operations. At present, the RCN is extremely limited in both regards. There is no organic sealift capability in the RCN, and the Halifax Class only has its embarked boats and helicopter available to move personnel and equipment ashore. Fortunately, planned future platforms will provide significant enhancements. AOPS will provide the ability to carry small vehicles such as ATVs and pick-up trucks, and will also be able to carry a small landing craft.[17] As a result, it will be able to transport moderate amounts of equipment to an area of operations and will be able to transfer it ashore in a permissive environment. This will greatly enhance the RCN's ability to contribute to joint operations, such as disaster relief. Similarly, the Berlin Class that the JSS is to be based upon is reportedly able to carry and load/unload 74 sea containers[18], which will provide extensive capacity in a HADR situation, provided adequate infrastructure can be accessed ashore for unloading. CSC is unlikely to provide any sealift capacity, as any space allocated for this would only serve to reduce its combat capability, which must remain its primary focus. It is expected that all new platforms be able to operate larger RHIBs for enhanced support to Special Operations Forces or land forces in general. As well, all platforms will be able to operate with the new CH-148 helicopter, which is expected to provide additional capability in terms of its ability to transfer land forces ashore.

[17] AOPS Fact Sheet.
[18] BERLIN Class Combat Support Ship.

14. While planned new capabilities will provide significant improvements over the status quo, there will nonetheless be a significant capability gap in supporting land forces during combat operations. The ability to move armoured vehicles or construction equipment by sea will continue to be a capability gap, and therefore the army will need to rely on airlift, which requires a suitable landing strip, or contracted sea lift, which requires a friendly port for disembarkation. It is this capability gap that would again justify the need for a dedicated amphibious warfare ship; this ship would not only provide the lift capability, but would also allow for the transfer of this equipment ashore in either an area where limited infrastructure is available (such as in a disaster zone) or in a non-permissive environment. Such a platform would also enable the operation of large helicopters such as the CH-47 Chinook, which would further enhance the ability to support land forces. Although such an acquisition is recommended, the specific requirements for such a capability are deemed to be outside the scope of this paper.

Training and Interoperability

15. Independent of any acquired capabilities, it is also imperative that the RCN trains to operate in a joint environment and in cooperation with land forces. It is uncommon for land forces to embark in ships, but this would greatly enhance their ability to operate from sea. Land forces are accustomed to operating with a much larger headquarters than is likely to be possible in a ship-based scenario, and it is therefore worthwhile to train in how to control forces ashore with a small headquarters unit. Training in the loading and unloading of equipment to shore connectors while at sea will also greatly enhance the ability to do so in an operational environment.

16. As previously stated, the Cyclone helicopter will provide significant capability improvements in terms of transporting forces ashore. However, as this is not a primary mission for maritime helicopter pilots, they are not likely to be well prepared for it. As a result, it would be beneficial for increased training in this role.

CONCLUSION

17. This paper has argued that the RCN's future operating environment is likely to be heavily focused on littoral areas. Therefore, the ability to operate with land forces will be imperative for success in the future. In order to enhance its capability, the RCN must look at its ability to command land forces from the sea, provide ISR coverage over the littoral area, provide area air defence and naval fire support, and enhance its ability to transport material, equipment and personnel, and to move it ashore in a variety of operational situations.

18. If these requirements are properly considered in the delivery of the ships the RCN plans to acquire in the next 10-15 years, the ability to support land forces from the sea will be greatly enhanced. The ability to conduct ISR missions over the land, and to protect land forces through area air defence and naval fire support can be significantly enhanced. In addition, limited command and control, logistics support and sealift capabilities could be provided. The main limitation will be the ability to embark a robust joint headquarters, to transport large amounts of land force equipment, and to move personnel and equipment ashore where no adequate infrastructure is available. As a result, moving forces ashore in a hostile environment will not be possible, and even the ability to conduct a major HADR mission will be extremely limited.

19. In order to provide the additional capability to truly support land forces across the spectrum of conflict, it will be necessary to acquire a purpose-built amphibious warfare ship, which will fill the remaining gaps outlined in the preceding paragraph. It must be emphasized, however, that this capability is only useful in conjunction with a fleet of surface combatants; on its own, such a platform is extremely vulnerable to threats that are common in the modern littoral environment.

20. Finally, there also exists the opportunity to improve the way that the RCN operates in a joint environment by dedicating some training time to operating with land forces, and practicing the movement of equipment and personnel ashore in a variety of operational scenarios.

RECOMMENDATION

21. In summary, the following is recommended:

a. Planned replacement ships should maximize the ability of the RCN to operate with forces ashore in the following areas:
    i. Enhance ISR capabilities over the shore through interoperability with MPA and UAV;
    ii. Develop improved interoperability between naval and land force communications systems;
    iii. Equip CSC with naval fire support capabilities;
b. In addition to planned replacements, the RCN should also acquire a dedicated amphibious warfare ship;
c. Independent of any equipment enhancements, the CAF can improve its ability to operate in the littoral environment by conducting joint training

between land and naval forces. As a minimum, this should include command of personnel ashore from ships and movement of equipment and personnel ashore under a variety of operating scenarios.

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